

IN THE CLAIMS

Please cancel claim 5, and amend claims 1, 10 and 11 as follows:

1. (CURRENTLY AMENDED) A method for forming a nitride semiconductor device, comprising:

(a) growing one or more non-polar a-plane gallium nitride (GaN) template layers on [[a]] an r-plane substrate; and

(b) growing one or more non-polar a-plane (Al,B,In,Ga)N layers off of a grown surface of the non-polar a-plane GaN template layers to form at least one non-polar a-plane quantum well.

2. (CANCELED)

3. (CANCELED)

4. (CANCELED)

5. (CANCELED)

6. (ORIGINAL) The method of claim 1, wherein the substrate is a sapphire substrate.

7. (ORIGINAL) The method of claim 1, wherein the growing step (a) comprises:

(1) annealing the substrate;

(2) depositing a nitride-based nucleation layer on the substrate;

(3) growing the GaN layer on the nucleation layer; and

(4) cooling the GaN under a nitrogen overpressure.

8. (ORIGINAL) The method of claim 1, wherein the growing steps are performed by a method selected from a group comprising metalorganic chemical vapor deposition (MOCVD), molecular beam epitaxy (MBE), liquid phase epitaxy (LPE), hydride vapor phase epitaxy (HVPE), sublimation, and plasma-enhanced chemical vapor deposition (PECVD).

9. (ORIGINAL) A device manufactured using the method of claim 1.

10. (CURRENTLY AMENDED) A nitride semiconductor device comprising one or more non-polar a-plane gallium nitride (GaN) template layers grown on [[a]] an r-plane substrate, and one or more non-polar a-plane quantum wells formed from one or more non-polar a-plane (Al,B,In,Ga)N layers grown off of a grown surface of the non-polar a-plane GaN template layers, wherein the nitride semiconductor device is created using a process comprising:

(a) growing one or more non-polar a-plane gallium nitride (GaN) template layers on [[a]] an r-plane substrate; and

(b) growing one or more non-polar a-plane (Al,B,In,Ga)N layers [[the]] off of a grown surface of the non-polar a-plane GaN template layers to form at least one non-polar a-plane quantum well.

11. (CURRENTLY AMENDED) A nitride semiconductor device, comprising:

(a) one or more non-polar a-plane gallium nitride (GaN) template layers grown on [[a]] an r-plane substrate; and

(b) one or more non-polar a-plane quantum wells formed from one or more non-polar a-plane (Al,B,In,Ga)N layers grown off of a grown surface of the non-polar a-plane GaN template layers.

12. (PREVIOUSLY PRESENTED) The method of claim 1, wherein the quantum well ranges in width from approximately 20 Å to approximately 70 Å.

13. (PREVIOUSLY PRESENTED) The method of claim 1, wherein the quantum well has a doped barrier.

14. (PREVIOUSLY PRESENTED) The method of claim 13, wherein the doped barrier is doped with silicon.

15. (PREVIOUSLY PRESENTED) The method of claim 14, wherein the doped barrier is doped with silicon with a dopant concentration of $2 \times 10^{18} \text{ cm}^{-3}$.

16. (PREVIOUSLY PRESENTED) The method of claim 1, wherein the quantum well is an GaN/AlGaN quantum well.